



APPLICATION NO. 10/806,016

INVENTION: Multi-scale code division frequency/wavelet multiple  
access

INVENTOR: Urbain Alfred von der Embse

CORRECTION TO SPECIFICATION

Attached is the corrected page 1 of the specification. The  
corrections are

Page 1 line 6 the word "apolication" is replaced by the  
correct spelling "application".

Page 1 lines lines 7-8 the phrase ", application  
09/526,117 filed on 01/09/2001" is deleted as un-necessary.



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This patent ~~aplication~~ application is a continuation in part of application 09/826,118 filed on 01/09/2001, ~~application 09/526,117 filed on 01/09/2001,~~ and application 10/266,257 filed on 10/08/2002.

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## BACKGROUND OF THE INVENTION

### I. Field of Invention

The present invention relates to both orthogonal frequency  
15 division multiple access OFDMA, to orthogonal Wavelet division multiple access OWDMA, to code division multiple access CDMA, and to multi-scale code division multiple access MS-CDMA, for cellular telephone and wireless data communications with data rates up to multiple T1 (1.544 Mbps), E1 (2.048 Mbps), Sonet,  
20 Ethernet, and higher (>10 Gbps), and to optical CDMA and optical OWDMA. Applications are to wire, wireless local area, wide area, mobile, point-to-point, and satellite communication networks. More specifically the present invention relates to a new and novel means for combining MS-CDMA with OFDMA, to a new and novel  
25 OWDMA which is an orthogonal multi-resolution complex Wavelet multiple access generalization of OFDMA, and to a new and novel means for combining MS-CDMA with OWDMA. This new architecture MS-CDMA OFDMA/OWDMA is an attractive candidate to replace current and future OFDMA applications and CDMA applications.

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### II. Description of Related Art

Current OFDMA art is represented by the applications to the wireless cellular communications standards IEEE 802.11a, IEEE



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## CROSS-REFERENCE TO RELATED APPLICATIONS

### U.S. PATENT DOCUMENTS

Listed in PTO/SB/08a attached

### OTHER PUBLICATIONS

- [1] IEEE 802.11g standard
- [2] Application 09/826,118 filed on 01/09/2001 New multi-Resolution waveforms, U.A. von der Embse
- [3] Application 10/266,257 filed 10/08/2002 Multi-scale CDMA, U.A. von der Embse
- [4] Application 09/826,117 filed on 01/09/2001 Hybrid-Walsh codes for CDMA, U.A. von der Embse
- [5] "Multirate Digital Signal Processing", R.E. Crochiere, L.R. Rabiner, 1983, Prentice-Hall
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- [7] "Wavelets and Filter Banks", Gilbert Strang, Truong Nguyen, 1996, Wellesley-Cambridge Press
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- [11] K.C. Ho and Y. T. Chan, "Optimum discrete Wavelet scaling and its application to delay and Doppler estimation", IEEE Signal Processing, Sept. 1998, pp. 2285-2290
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- [13] P.P. Vaidyanathan and T.Q. Nguyen, "Eigenvalues: A New Approach to Least-Squares FIR Filter Design and Applications Including Nyquist Filters", IEEE Trans. on Circuits and Systems, Vo. CAS-34, No. 1, Jan. 1987, pp 11-23
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